



National Transportation Safety Board

Washington, D.C. 20594

Office of the Chairman

JUN 18 1999

Honorable Kelley S. Coyner
Administrator
Research and Special Programs Administration
Washington, D.C. 20590

Dear Ms. Coyner:

The National Transportation Safety Board received your June 30, 1998, and July 1, 1998, letters updating the status of several safety recommendations issued to the Research and Special Programs Administration (RSPA). Subsequent to receiving these letters, Office of Pipeline Safety (OPS) and Safety Board staff met on November 13, 1998, to discuss the responses and the actions RSPA has taken on these safety recommendations, as well as the planned actions, industry initiatives, and regulatory restrictions concerning them.

On March 24, 1987, as a result of its investigations of an April 27, 1985, Texas Gas pipeline rupture near Beaumont, Kentucky, and a February 21, 1986, Texas Eastern Gas pipeline rupture near Lancaster, Kentucky, the Safety Board asked that RSPA:

Require operators of both gas and liquid transmission pipelines to periodically determine the adequacy of their pipelines to operate at established maximum allowable pressures by performing inspections or tests capable of identifying corrosion-caused and other time-dependent damages that may be detrimental to the continued safe operation of these pipelines, and require necessary remedial action. (P-87-4)

Establish criteria for use by operators of pipelines in determining the frequency for performing inspections and tests conducted to determine the appropriateness of established maximum allowable operating pressures. (P-87-5)

Also, on September 9, 1987, as a result of its investigation of the July 8, 1986, fire and explosion caused by a ruptured gasoline pipeline at the Williams Pipeline Company in Mounds View, Minnesota, the Safety Board issued Safety Recommendation P-87-23, requesting that RSPA revise 49 *Code of Federal Regulations* (CFR) Parts 192 and 195 to include operational-based criteria for determining safe service intervals for pipelines between hydrostatic retests.

The Safety Board is aware that in February 1987, RSPA issued an Advance Notice of Proposed Rulemaking (ANPRM) for public comment on a number of proposed solutions to potential pipeline safety problems. The Board also understands that in June 1990, based on public comments and the opinions expressed by pipeline safety advisory committees to the NPRM, as well as the results of a study that RSPA sent to Congress in compliance with the

Hazardous Liquid Pipeline Safety Act of 1979, RSPA concluded that inspection and testing of all pipelines at preset intervals to assess integrity was not justified.

RSPA has stated that it requires many inspection procedures to ensure the integrity of pipelines and believes it is more effective to base the need to inspect or test on risk factors, such as corrosion records, leak history, and pipeline location, rather than a preset frequency schedule. We understand that RSPA is examining a risk-based approach in response to the most recent Congressional directive on periodic inspection (49 U.S.C. § 60102(f)(2)). Under this directive, RSPA will prescribe, if necessary, additional standards for the periodic inspection of certain gas and hazardous liquid pipeline facilities, including the citing of circumstances in which an internal inspection device (smart pig), or a method no less effective, is to be used. Further, RSPA advised the Board that a public workshop on this directive was attended by pipeline companies, research organizations, consumer organizations, and environmental groups, and that the overwhelming sense of the participants was that RSPA should avoid a prescriptive approach and allow operators to weigh risk factors in deciding when to provide additional inspection and what method to use.

The Safety Board understands that RSPA is now defining priorities for internal inspection, starting with determination of areas that are unusually sensitive to environmental damage in the event of a pipeline accident. RSPA's current activities are promising, however, given that these recommendations are more than 12 years old, the Safety Board encourages RSPA to continue its efforts on these issues and classifies P-87-4, -5 and -23 "Open—Unacceptable Response," due to the length of time that has passed without action consistent with the recommendation. The Board would appreciate being provided periodic updates on the status of the related RSPA initiatives.

Also on September 9, 1987, as a result of its investigation of the previously cited accident, the Safety Board issued Safety Recommendation P-87-26, requesting that RSPA obtain sufficient data on low frequency *Electric Resistance Weld* (ERW) pipe and determine if its continued use presents an unreasonable hazard to public safety and take appropriate regulatory action for identified deficiencies.

The Safety Board understands that RSPA issued alert notices to warn the pipeline industry of problems with ERW pipe in January 1988 and again in March 1989, and has a pending regulatory proposal that addresses this issue. At the November 1988, OPS/Safety Board meeting, the Board suggested that the OPS consider republishing the 1988 and 1989 alert notices to remind the pipeline industries of the problems with the ERW pipe, in addition to publishing the final rules. The Safety Board encourages the republication of the alert notices and, pending publication and review of the final regulations, Safety Recommendation P-87-26 has been classified "Open—Acceptable Response." The Board would appreciate being kept informed of the status of these initiatives.

On May 10, 1988, as a result of its investigation of the August 11, 1987, incident at the KG Gas Processing plant near Winters, Texas, in which hydrogen sulfide flowed into the gas stream being delivered to the Lone Star Gas Company, the Safety Board asked that RSPA:

Establish, based on known toxicological data, a maximum allowable concentration of hydrogen sulfide in natural gas pipeline systems, and amend 49 CFR Part 192 to reflect this determination. (P-88-1)

Revise 49 CFR Part 191 to require that pipeline operators report all incidents in which concentrations of hydrogen sulfide in excess of the maximum allowable concentration are introduced into pipeline systems that transport natural gas intended for domestic or commercial purposes. (P-88-2)

Require gas pipeline operators to install on their systems equipment capable of automatically detecting and shutting off the flow of gas when the maximum allowable concentrations of hydrogen sulfide-contaminated gas are exceeded. (P-88-3)

The Board understands that RSPA issued an ANPRM in 1989, asking for information that would help RSPA decide whether regulations are needed to control the concentration of hydrogen sulfide in natural gas pipeline systems. In 1992, the Technical Pipeline Safety Standards Committee voted that the proposed rule was not feasible, reasonable, or practicable. The Board recognizes that pipeline operators can contract for the removal of hydrogen sulfide as a condition of purchase; however, such contracts cannot prevent the entry of hydrogen sulfide into pipelines.

When the Board recommended the development of regulations on this subject, the accident cited had occurred as a result of faulty equipment and deficient procedures. The Safety Board continues to believe that pipeline operators who do not install their own monitoring and control devices must be required to verify that equipment is properly installed and maintained. In addition, the Board does not believe that operators of gathering lines should be allowed to transport gas near populated areas through a pipeline containing a high level of hydrogen sulfide. The California Public Utilities Commission has recognized the danger and does not allow gas utilities to supply gas that contains more than $\frac{1}{4}$ grain of hydrogen sulfide per 100 standard cubic feet. Given RSPA's continued resistance to implementing what the Board considers a reasonable, feasible, and useful method of addressing and identifying a potentially serious safety problem, and because RSPA has advised the Board that it does not plan to prescribe any requirements addressing hydrogen sulfide concentrations in pipelines, Safety Recommendations P-88-1, -2 and -3, have been classified "Closed—Unacceptable Action."

On August 9, 1989, following its investigation of a pipeline rupture and fire resulting from a May 12, 1989, train derailment near San Bernardino, California, the Safety Board issued Safety Recommendation P-89-6, asking that RSPA establish inspection, maintenance, and test requirements to demonstrate and maintain the proper functioning of check valves installed in pipeline systems. On July 20, 1990, based on additional findings resulting from its investigation of the San Bernardino accident, the Safety Board issued Safety Recommendation P-90-24 asking that RSPA address, in the ongoing study to determine the feasibility of establishing inspection, maintenance, and test requirements for check valves, the lack of definitions for the various terms used for valves in the pipeline safety regulations.

The Safety Board is aware that RSPA published the 1989 Alert Notice, the 1997 Advisory Bulletin, and the 1997 study of *Diagnostic Techniques for Check Valves*. The Safety Board also understands that, following on-site inspection of check valves, RSPA advised operators of gas and hazardous liquid pipelines to perform a thorough quality assessment of their remanufactured check valves, followed by a test or inspection to ensure that tolerances are within design parameters, particularly valves, such that the shaft is kept inside the valve by set screws. In addition, the regulations in 49 CFR Part 195.402, *Procedural Manual for Operations, Maintenance, and Emergencies*; and Part 195.420, *Valve Maintenance*, require operators to ensure that valves operate and function properly.

The Safety Board is pleased to learn that RSPA's pipeline safety inspectors will continue to routinely check pipeline operators for compliance with the applicable regulations, the 1989 Alert Notice, and the 1997 Advisory Bulletin. Furthermore, RSPA addressed the definitions of valve terms in its 1997 study. Accordingly, Safety Recommendations P-89-6 and P-90-24 have both been classified "Closed—Acceptable Action."

On February 22, 1990, as a result of its investigation of the October 3, 1989, fire and explosion caused by the U.S. fishing vessel *Northumberland* striking a gas pipeline in the Gulf of Mexico, the Safety Board issued Safety Recommendation P-90-4, asking that RSPA identify, with the assistance of the U.S. Department of the Interior and other Gulf Coast States that may have jurisdiction, the type, number, location, and owner of all offshore pipelines in the Gulf of Mexico. The Safety Board is pleased that RSPA has completed its collection of computer-assisted maps of all offshore oil and gas lease blocks, including all pipelines and oil and gas production facilities in the Gulf of Mexico. The Safety Board understands that these maps indicate, among other items, the following information: the respective operators of, and products carried by, the pipeline systems; the Department of the Interior segment and sequence numbers; and the locations of risers, crossing pipelines, sub-sea tie-ins, and block boundaries. The Safety Board is also aware that RSPA is adding this information to its National Pipeline Mapping System, which is being developed in cooperation with Federal and State agencies and the pipeline industry. Accordingly, Safety Recommendation P-90-4 has been classified "Closed—Acceptable Action."

On April 20, 1990, as a result of its 1990 study of five pipeline accidents in and near the State of Kansas, the Safety Board issued the following safety recommendations to RSPA:

Evaluate each of your pipeline safety regulations to identify those that do not contain explicit objectives and criteria against which accomplishment of the objective can be measured; to the extent practicable, revise those that are so identified. (P-90-15)

Develop and make public through advisories or other means guidance detailing the types of actions expected of pipeline operators and the basis that will be used in assessing compliance for all pipeline safety regulations that do not contain explicit objectives and criteria against which accomplishment is to be measured. (P-90-16)

The Safety Board is disappointed that RSPA has not completed the evaluation as requested. Therefore, because there has been no comprehensive assessment of the pipeline safety regulations, Safety Recommendation P-90-15 has been classified "Closed—Unacceptable Action."

Concerning Safety Recommendation P-90-16, the Safety Board understands that RSPA has developed and distributed a manual for nontechnically trained operators of master meter systems and small municipal or independent natural gas systems to assist them in achieving compliance with Federal pipeline safety regulations. In addition, RSPA distributed this manual to all State pipeline safety program officers and made it available to the public on the RSPA web site. Based on these actions, Safety Recommendation P-90-16 has been classified "Closed—Acceptable Action."

On October 1, 1990, based on additional findings resulting from its investigation of the 1989 *Northumberland* accident in the Gulf of Mexico, the Safety Board issued the following safety recommendations to RSPA:

Develop and implement, with the assistance of the Minerals Management Service (MMS), the U.S. Coast Guard, and the U.S. Army Corps of Engineers, effective methods and requirements to bury, protect, inspect the burial depth of, and maintain all submerged pipelines in areas subject to damage by surface vessels and their operations. (P-90-29)

Evaluate, with the assistance of the MMS, the need for emergency planning and coordination between offshore pipeline operators and producers, and then implement, if necessary, appropriate safety regulations. (P-90-31)

RSPA reports that it contracted with the Texas A&M University to conduct a study to determine the feasibility of the action requested in Safety Recommendation P-90-29. The study, which was completed in January 1998, concluded that current survey techniques are effective when used under appropriate conditions and that advances in smart pig technology have the potential to improve the efficiency of future surveys. The study recommended that RSPA proceed with the following measures: establish requirements stipulating the pipeline depth for burial inspections and reburial, establish requirements stipulating the maintenance and protective covering of pipelines below the natural bottom of a waterway, determine the periodicity of future surveys based on risk analysis, and develop a mandatory "one-call" system for marine pipelines. Because RSPA is drafting a Notice of Proposed Rulemaking (NPRM) incorporating the study recommendations, P-90-29 will remain "Open—Acceptable Response," pending publication and review of the final rules.

Regarding Safety Recommendation P-90-31, the Safety Board understands that RSPA and the MMS, after evaluating response plans dealing with spill planning and spill response, implemented a Memorandum of Understanding (MOU), which was published in the *Federal Register* on March 16, 1998 (63 FR 12659). The MOU has reduced overlap in spill response and responsibilities. Furthermore, RSPA issued an advisory bulletin on April 5, 1994, regarding the need for emergency planning and coordination between offshore pipeline operators and

procedures. Based on these actions, Safety Recommendation P-90-31 has been classified "Closed—Acceptable Action."

On July 17, 1991, as a result of its investigation of the March 13, 1990, fire and explosion from a ruptured Texas Eastern Products Pipeline Company pipeline near North Blenheim, New York, the Safety Board asked that RSPA:

Define the operating parameters that must be monitored by pipeline operators to detect abnormal operations and establish performance standards that must be met by pipeline monitoring systems installed to detect and locate leaks. (P-91-1)

The Safety Board understands that RSPA will soon issue a final rule incorporating the industry standard for leak detection contained in the American Petroleum Institute's (API's) *Computational Pipeline Monitoring* (API 1130) document. However, this standard only applies to systems that currently exist. If no system is already in place, operators will not yet be required to install one. Accordingly, because RSPA has indicated that it has not yet required operators to install such systems. Pending the publication of a requirement to install such systems, Safety Recommendation P-91-1 has been classified "Open—Unacceptable Response."

On February 7, 1995, as a result of its investigation of the March 23, 1994, fire and explosion from a Texas Eastern Transmission Corporation (TETCO) pipeline rupture in Edison township, New Jersey, the Safety Board issued the following safety recommendations to RSPA:

Expedite requirements for installing automatic- or remote-operated mainline valves on high-pressure pipelines in urban and environmentally sensitive areas to provide for rapid shutdown of failed pipeline segments. (P-95-1)

Develop toughness standards for new pipe installed in gas and hazardous liquid pipelines, especially in urban areas. (P-95-2)

Expedite the completion of the study on methods to reduce public safety risks in the siting and proximity of pipelines, modify that study to include consideration of building standards, and make the completed study widely available to local and State governments. (P-95-4)

The Safety Board is aware that RSPA issued an ANPRM in 1994 and held a public workshop in 1995 on the use of emergency flow restricting devices (EFRDs) and other procedures, systems, and equipment for detecting and locating hazardous liquid pipeline ruptures and minimizing product releases. Further, the Safety Board understands that RSPA now plans to issue an NPRM proposing a definition for areas unusually sensitive to environmental damage, and that RSPA will later address the need to mandate EFRD installation. Therefore, pending further response on the status of these actions, Safety Recommendation P-95-1 has been classified "Open—Acceptable Response." The Board urges RSPA to expedite action on this important safety issue.

Regarding Safety Recommendation P-95-2, the Safety Board is aware that RSPA has been working with the API and is considering a rulemaking effort to incorporate toughness requirements proposed at the 1997 API Standardization Committee Conference and the June 1998 API task group meeting into the pipeline safety regulations. Based on these actions, Safety Recommendation P-95-2 has been classified "Open—Acceptable Response." The Safety Board encourages RSPA to expedite its evaluation of the API guidelines and publication of final rule.

The Safety Board understands that, in regard to Safety Recommendation P-95-4, RSPA retained the New Jersey Institute of Technology (NJIT) to perform the recommended study, with the stipulation that, because RSPA has no authority to site pipelines, the NJIT analysis be limited to identifying methods for reducing public safety risks relating to the proximity of pipelines to public facilities and highly populated areas. The Board further understands that RSPA concluded a consent order requiring that TETCO develop an encroachment threat profile defining potential threats that different land uses may present to pipelines, and that a workshop will be held with land-use officials in New Jersey to discuss where the risks are and how government and other stakeholders can mitigate them.

In addition, RSPA is working on a number of initiatives, including the evaluation of the Transportation Research Board Special Report #219, *Pipelines and Public Safety*, which addresses pipeline siting issues. RSPA has sent copies of this report to State governments, encouraging them to carefully consider the report recommendations. Because of RSPA's progress in implementing the recommended action, Safety Recommendation P-95-4 has been classified "Open—Acceptable Response." The Board encourages RSPA to expedite its action on these initiatives.

The Safety Board looks forward to further updates on the implementation of Safety Recommendations P-87-4, -5, -23, and -26; P-90-29; and P-95-1, -2, and -4.

Sincerely,


Jim Hall
Chairman

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